REMARKS

This Amendment is filed in response to the Office Action dated August 21, 2008. For the following reasons this application should be allowed and the case passed to issue. No new matter is introduced by this amendment. The amendment to claim 1 is supported by page 8, lines 9-10 of the specification. Support for the amendment to claim 5 is found on pages 8-10 of the specification. The specification at page 6, lines 8-11 provide support for the amendment to claim 24. Claim 2 is amended to maintain proper dependency.

Claims 1-3, 5-11, and 19-26 are pending in this application. Claims 1-11 and 19-26 were rejected. Claims 1, 2, 5, and 24 are amended in this response. Claim 4 is cancelled in this response. Claims 12-18 and 27 were previously cancelled.

Claim Rejections Under 35 U.S.C. §§ 102 and 103

Claims 1-4 were rejected under 35 U.S.C. § 102(b) as being anticipated by Johnson (US 6,124,051).

Claims 1-4, 5, 7, 9, and 22-26 were rejected under 35 U.S.C. § 102(b) as being anticipated by Romanowski et al. (US 5,132,174).

Claims 24-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson.

Claims 5-11 and 19-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson in view of St. Pierre (WO 01/48846).

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention as claimed and the cited prior art.

An aspect of the invention, per claim 1, is a fuel cell assembly comprising a fuel cell stack formed by laminating a plurality of cells and plus and minus current extraction sections. The current extraction sections extracting current generated by the fuel cell stack and sandwiching the fuel cell stack with respect to the direction of lamination. Each current extraction section comprising a current extraction plate which is fixed to an end cell positioned on an end of the fuel cell stack so as to extract the generated current, and an end plate for uniformly binding the cells of the fuel cell stack. A passage allowing flow of a gas during startup of the fuel cell stack at a temperature below freezing, is provided for at least one of the current extraction plate and the end plate. A catalyst for combusting the gas is applied to a wall face of the passage.

Another aspect of the invention, per claim 5, is a fuel cell system comprising a fuel cell assembly comprising a fuel cell stack formed by laminating a plurality of cells and plus and minus current extraction sections. The current extraction sections extract current generated by the fuel cell stack and sandwich the fuel cell stack with respect to the direction of lamination. Each current extraction section comprises a current extraction plate which is fixed to an end cell positioned on an end of the fuel cell stack so as to extract the generated current, and an end plate for uniformly binding the cells of the fuel cell stack. A passage allowing flow of a fluid during startup of the fuel cell stack at a temperature below freezing, is provided for at least one of the current extraction plate and the end plate. A control valve is provided which is open to supply the fluid to the passage during startup of the fuel cell stack and which is closed to stop supplying the fluid to the passage under normal conditions of the fuel cell stack after the startup. A heating device heats the passage for the fluid.

Another aspect of the invention, per claim 24, is a fuel cell assembly comprising a fuel cell stack formed by laminating a plurality of cells and plus and minus current extraction sections. The current extraction sections extract current generated by the fuel cell stack and sandwich the fuel cell stack with respect to the direction of lamination. Each current extraction section comprises a current extraction plate which is fixed to an end cell positioned on an end of the fuel cell stack so as to extract the generated current, and an end plate for uniformly binding the cells of the fuel cell stack. An enclosed cavity confines gas therein formed in at least one of the current extraction sections. The gas is sealed in the enclosed cavity at a reduced pressure. The end plate is formed from a material which has a lower coefficient of thermal conductivity than a material for forming the current extraction plate.

Johnson and Romanowski et al. do not anticipate or render obvious the claimed the fuel cell assemblies and fuel cell system because Johnson and Romanowski et al. do not disclose or suggest a fuel cell assembly comprising a passage allowing flow of a gas during startup of the fuel cell stack at a temperature below freezing, provided for at least one of the current extraction plate and the end plate, wherein a catalyst for combusting the gas is applied to a wall face of the passage, as required by claim 1; a fuel cell system comprising a control valve which is open to supply the fluid to the passage during startup of the fuel cell stack and which is closed to stop supplying the fluid to the passage under normal conditions of the fuel cell stack after the startup, as required by claim 5; and an enclosed cavity for confining gas therein formed in at least one of the current extraction sections, the gas being sealed in the enclosed cavity at reduced pressure; as required by claim 24.

In an embodiment of the present invention, a catalyst for combusting gas is applied to a wall face of the passage provided for the current extraction plate or the end plate. Thus, the catalyst can directly heat the current extraction plate or the end plate.

According to Johnson, as the high-temperature oxidant gas flows, it picks up moisture from the product water to reduce the accumulated product water in the cathode plate. The coolant flows to exchange heat between high-temperature cathode gas and the coolant. A coolant flows in the vicinity of the cathode gas openings of the bus plate 14 such that the waste heat flows from top to bottom of the stack while oxidant gas flows from the bottom toward the top. It would not have been obvious to one of skill in the art to allow flow of the coolant (fluid) in the turnaround grooves 29 of the bus plate 14 of Johnson during startup of the fuel cell stack at a temperature below freezing, because high-temperature oxidant gas does not exist at a temperature below freezing. As explained above, Johnson fails to disclose a passage allowing flow of a fluid during startup of the fuel cell stack at a temperature below freezing a passage allowing flow of a gas during startup of the fuel cell stack at a temperature below freezing, provided for at least one of the current extraction plate and the end plate, wherein a catalyst for combusting the gas is applied to a wall face of the passage, as required by claim 1; a fuel cell system comprising a control valve which is open to supply the fluid to the passage during startup of the fuel cell stack and which is closed to stop supplying the fluid to the passage under normal conditions of the fuel cell stack after the startup, as required by claim 5; and an enclosed cavity for confining gas therein formed in at least one of the current extraction sections, the gas being sealed in the enclosed cavity at reduced pressure; as required by claim 24.

St. Pierre does not cure the deficiencies of Johnson. St. Pierre discloses increasing the temperature of the single cells (not the current extraction plate or end plate) by supplying the

single cells with high-temperature gas. Thus, the arrangements of the St. Pierre and Johnson devices and their objectives are very different from those of the present invention. Combining the teachings of St. Pierre with Johnson would not suggest the claimed fuel cell assemblies and fuel cell system.

Romanowski et al. fail to disclose or suggest that the fluid is a gas and that a catalyst for combusting gas is applied to a wall face of the passage, as required by claim 1.

According to Romanowski et al. when the stack 2 is started up, a pump will begin to circulate coolant through the stack 2. The coolant will be circulated first through a heater and then into the coolant manifold passages. The coolant heater has an auxiliary start-up component which imparts additional heat to the coolant until such time as the stack reaches proper operating temperature, whereupon the auxiliary start-up component of the heater will shut off. The auxiliary coolant circulating assemblies 18 and 20 will warm the insulating plates 6 and 8, and thus, the outermost side of the endmost cell in the stack 2 so that the latter will reach the proper operating temperature faster. This minimizes the need for the auxiliary start-up heater components thus conserving the operating energy of the stack 2. Thus, Romanowski et al. disclose that the fluid is a coolant (liquid) and that the coolant heated by a heater warms the endmost cell in the stack 2. The coolant is not heated by a catalyst.

Romanowski et al. further fail to disclose or suggest a control valve which is open to supply the fluid to the passage during startup of the fuel cell stack and which is closed to stop supplying the fluid to the passage under normal conditions of the fuel cell stack after the startup. Romanowski et al. disclose that the coolant heater imparts additional heat to the coolant. Thus, Romanowski et al. fail to disclose a valve which is open to supply the fluid to a passage during startup of the fuel cell stack and closed to stop supplying the fluid to the passage after startup, as

required by claim 5. Romanowski et al. further fail to disclose or suggest an enclosed cavity for confining fluid therein formed in at least one of the current extraction sections. There is no suggestion of sealing a gas in the enclosed cavity at a reduced pressure, as required by claim 24.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 399, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Johnson and Romanowski et al. do not disclose a fuel cell assembly comprising a passage allowing flow of a gas during startup of the fuel cell stack at a temperature below freezing, provided for at least one of the current extraction plate and the end plate, wherein a catalyst for combusting the gas is applied to a wall face of the passage, as required by claim 1; a fuel cell system comprising a control valve which is open to supply the fluid to the passage during startup of the fuel cell stack and which is closed to stop supplying the fluid to the passage under normal conditions of the fuel cell stack after the startup, as required by claim 5; and an enclosed cavity for confining gas therein formed in at least one of the current extraction sections, the gas being sealed in the enclosed cavity at reduced pressure; as required by claim 24, Johnson and Romanowski et al. do not anticipate claims 1, 5, and 24.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily

available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Johnson or St. Pierre to modify the fuel cell assembly and fuel cell system of Johnson to include a fuel cell assembly comprising a passage allowing flow of a gas during startup of the fuel cell stack at a temperature below freezing, provided for at least one of the current extraction plate and the end plate, wherein a catalyst for combusting the gas is applied to a wall face of the passage, as required by claim 1; a control valve which is open to supply the fluid to the passage during startup of the fuel cell stack and which is closed to stop supplying the fluid to the passage under normal conditions of the fuel cell stack after the startup, as required by claim 5; and an enclosed cavity for confining gas therein formed in at least one of the current extraction sections, the gas being sealed in the enclosed cavity at reduced pressure; as required by claim 24, nor does common sense dictate such modifications. The Examiner has not provided any evidence that there would be any obvious benefit in making such modifications of Johnson. *See KSR Int'l Co. v. Teleflex, Inc.*, 500 U.S. ____ (No. 04-1350, April 30, 2007) at 20.

The only teaching of the claimed fuel cell assemblies and fuel cell system is found in Applicant's disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The dependent claims are allowable for at least the same reasons as the respective independent claims from which they depend and further distinguish the claimed methods.

In light of the above Remarks and Amendments, this application should be allowed and the case passed to issue. If there are any questions regarding these remarks or the application in

general, a telephone call to the undersigned would be appreciated to expedite prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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